

# POS88III

# **Line Thermal Printer**



# User's Manual

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## **Introduction**

POS88III printer is a new type line thermal printer, it features in fast speed print, low print noise, high reliability, perfect print quality and ribbon needless, avoiding the vexation of regular maintenance.

POS88III printer: small in outline dimension, simple operation, and extensive application, especially suitable for commercial cash register, PC-POS, bank POS and all kinds of receipts print.

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## Chapter 1 Feature and Performance

### 1.1 Print Performance

- Print method: direct thermal
- Print paper width: 79.5±0.5mm
- Print density: 8 dots/mm, 576 dots/line
- Print speed: approx.150mm / sec. or 40 lines/sec.
- Reliability
  - Print head life: 100km
  - Using condition:
    - \* Print 12 × 24 ASCII characters, print 50 lines each time, intermittent print repeatedly
    - \* Each dot-line printing at the same time should not exceed 25%, each character line and one dot vertical printing repeatedly should not exceed 11 times
    - \* Use specified thermal paper
      - Cutter life: 500,000 times
      - Using condition: less than 30 times/minute
- Valid print width: 72mm
- Feeding speed: approx.150mm / sec. or 40 lines / sec.

### 1.2 Print Paper

- Thermal paper roll model: TF50KS—E (Japan paper co.ltd)  
AF50KS-E (JUJO THERMAL)
- Thermal paper roll: Width— — — 79.5±0.5mm
  - Outer Diameter — — — 80mm (max.)
  - Inner Diameter — — — 13mm (min.)
  - Thickness — — — 53~60g / m<sup>2</sup>

### 1.3 Print Font

- ANK character set:
  - 12×24 dots, 1.5 (W) ×3.00 (H) mm;
- GB Chinese Character library level I, II:
  - 24×24 dots, 3.00 (W) ×3.00 (H) mm

### 1.4 Interface

- Serial interface

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DB-25 socket (female), supports XON/XOFF and RTS/CTS protocols.  
Baud rate: 12000~115200bps adjustable.

Data structure: 1start bit + (7 or 8) data bits + 1 stop bit.

Parity checking: no parity or odd, even parity optional.

- Parallel interface

DB-25 socket (male) or 36-pin is optional, 8-bit parallel interface, BUSY/ACK handshaking protocol, TTL signal level.

- Cash drawer control

DC24V, 1A, 6-pin RJ-11 socket.

## 1.5 Print control commands

- Character print commands: support double-width, double height print of ANK characters, user-defined characters and Chinese characters, the character line spacing is adjustable.

- Graphics print commands: support the print of bit-map graphics and download bit-map graphics with different density

- GS bar code print commands: support EAN-13, EAN-8 bar code print.

## 1.6 Power Supply

- DC24V $\pm$ 10%, 2A, A-1009-3P power socket.

## 1.7 Operation Environment

- Operation temperature: 5~50℃; Relative humidity: 10~80%

- Storage temperature: -20~60℃; Relative humidity: 10~90%

## 1.8 Outline Dimension

- 150 (W) ×192 (L) ×150 (H) mm

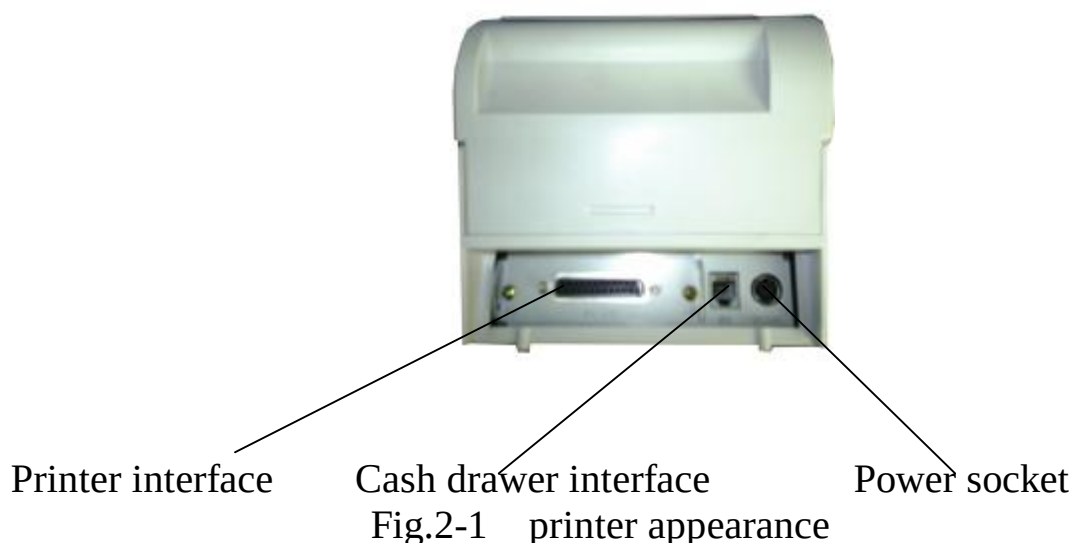
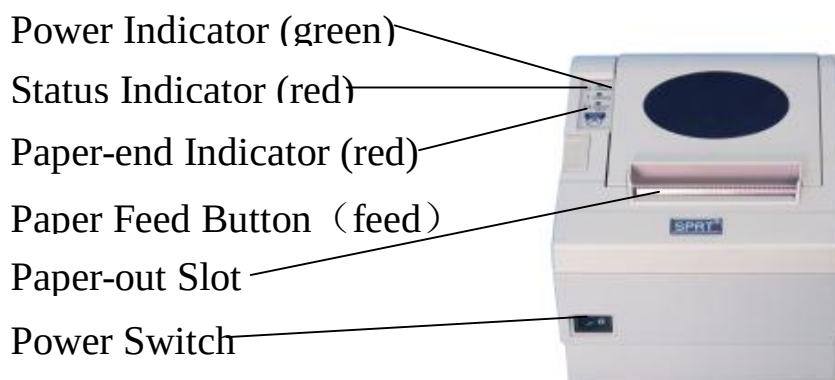
## 1.9 Model classification

| Model        | Cutter           | Interface                       |
|--------------|------------------|---------------------------------|
| POS88III-AS  | Partial-cutting  | Serial( DB25 female)            |
| POS88III-AP1 | Partial -cutting | Parallel(36-pin standard print) |
| POS88III-AP2 | Partial -cutting | Parallel(DB25 male)             |
| POS88III-BS  | Full-cutting     | Serial(DB25 female)             |
| POS88III-BP1 | Full-cutting     | Parallel(36-pin standard print) |
| POS88III-BP2 | Full-cutting     | Parallel(DB25 male)             |

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# Chapter 2 Operation Specification

## 2.1 Printer Appearance



## 2.2 Paper Installation

### 2.2.1 Paper Loading

POS88III adopts 80mm width thermal paper roll.

If you prepare to load the paper, you can do as the following steps.

Hold down the upper cover button, open the movable upper cover, move away the old paper roll, and put the new thermal paper in the paper holder of printer, draw a certain length of the paper roll, put the paper end on the print head, close the upper cover and press it downwards lightly until it restore to original position, and the paper end appears from the paper-out slot which is on the upper cover, then print paper installation is finished.

### Caution!

1. When there is no paper in the print head, don't press **【FEED】** button, avoiding to shorten the print head life;
2. Please don't feed or draw the paper forwards or backwards with hands. When returning paper, please cut the extra paper, and press **【LF】** button, paper will go forwards.

### 2.2.2 Solution to Paper Jam

Turn power off, open the upper cover, hold down the black rubber cutter lever, at the same time move the cutter forwards slowly, can separate the cutter from the print head. Then lift the print head lever forwards to maximum position, draw out the paper slowly with hand.

## 2.3 Interface

### 2.3.1 Serial Interface

The serial interface of POS88III printer is compatible with RS-232C, supports RTS/CTS and XON/XOFF handshaking protocols, uses DB25 socket (female). The pin order of the serial port is as Fig.2-2 shows:



Fig.2-2 Pin Order of Serial Port

The pin assignment of serial interface is shown in Fig. 2-3:

| Pin No. | Signal Name | Source  | Description                                                                                                                                      |
|---------|-------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 2       | RXD         | Host    | Printer receives data from host                                                                                                                  |
| 3       | TXD         | Printer | Printer transmits control code X-ON/X-OFF and data to host                                                                                       |
| 5       | CTS         | Printer | Signal "MARK" indicates that the printer is "BUSY" and unable to receive data; "SPACE" indicates that the printer is "READY" for receiving data. |

|   |     |         |                                                       |
|---|-----|---------|-------------------------------------------------------|
| 6 | DSR | Printer | Signal “SPACE” indicates that the printer is “ONLINE” |
| 7 | GND | —       | Signal Ground                                         |
| 8 | DCD | Printer | Same to signal CTS                                    |

Note: ① “Source” denotes the source that signal come from;  
 ② Logical signal level is EIA.

Fig.2-3 Pin Assignment of Serial Interface

The baud rate and data structure in serial interface mode is 9600bps, 8-bit data bits, no parity bit and 1 stop bit.

The serial interface of POS88 III can be connected to standard RS-232C interface. When it is connected to IBM PC or its compatible machine, connection can accord to Fig.2-4.

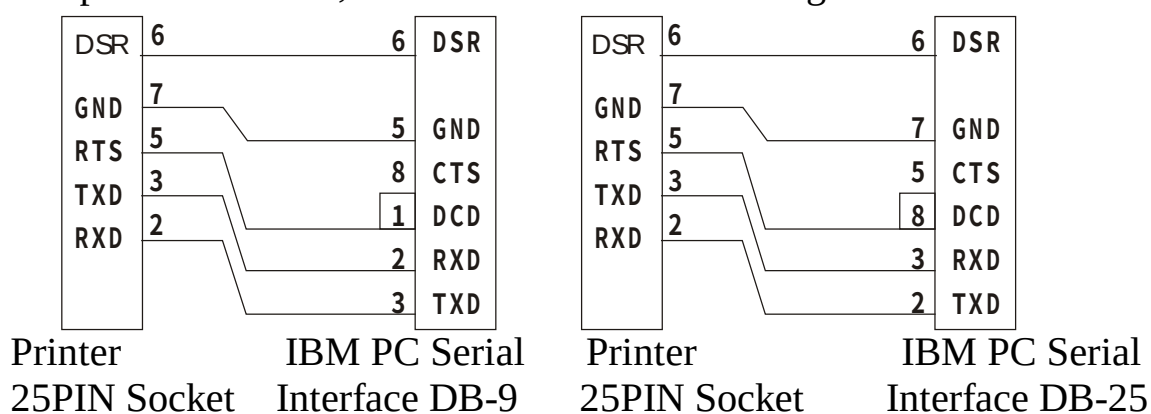


Fig.2-4 Connection between POS88III and IBM PC Serial Interface Sketch Map

### 2.3.2 Parallel Interface

The parallel interface of POS88III printer is compatible with CENTRONICS, supports BUSY or ACK handshaking protocol, uses DB25 socket (male) or 36pin CENIRONICS socket (female) optional.

The pin order of parallel port is as Fig. 2-5 shows:

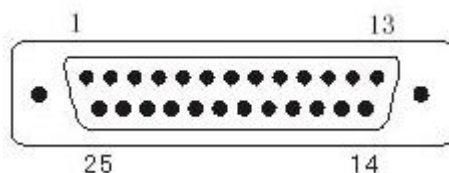


Fig.2-5 Pin Order of Parallel Port

The pin assignment of DB25 parallel interface is shown in Fig. 2-6 shows:

| Pin No.                              | Signal                                                               | Direction                                    | Description                                                                                                                                                                                    |                                                                                                                                    |
|--------------------------------------|----------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 1                                    | /STB                                                                 | In                                           | Strobe pulse to latch data, Reading occurs at falling edge.                                                                                                                                    |                                                                                                                                    |
| 2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 | DATA1<br>DATA2<br>DATA3<br>DATA4<br>DATA5<br>DATA6<br>DATA7<br>DATA8 | In<br>In<br>In<br>In<br>In<br>In<br>In<br>In | These signals represent the 1 <sup>st</sup> bit to 8 <sup>th</sup> bit of the parallel data representatively, each signal is at HIGH level when data is logic 1, and LOW when data is logic 0. |                                                                                                                                    |
| 10                                   | /ACK                                                                 | Out                                          |                                                                                                                                                                                                | Answer pulse, LOW level signal indicates that data have already been received and the printer gets ready to receive the next data. |
| 11                                   | BUSY                                                                 | Out                                          |                                                                                                                                                                                                | HIGH level signal indicates that the printer is BUSY and can not receive data.                                                     |
| 12                                   | PE                                                                   | Out                                          |                                                                                                                                                                                                | HIGH level signal indicates that paper is end.                                                                                     |
| 13                                   | SEL                                                                  | Out                                          |                                                                                                                                                                                                | Pulling up to HIGH level signal by a resistor                                                                                      |
| 15                                   | /ERR                                                                 | Out                                          |                                                                                                                                                                                                | LOW level signal indicates that there has error.                                                                                   |
| 14,16,17                             | NC                                                                   | ---                                          |                                                                                                                                                                                                | No connection                                                                                                                      |
| 18-25                                | GND                                                                  | ---                                          |                                                                                                                                                                                                | Grounding logical 0 level                                                                                                          |

Note: (1) “In” denotes input to the printer, “Out” denotes output from the printer.

(2) Signal level is TTL standard.

Fig.2-6 Pin assignment of DB-25 parallel interface

The pin assignment of 36pin parallel interface is as Fig.2-7 shows:

| pin No.                              | Signal                                                               | Direction                                    | Description                                                                                                                                                                                    |                                                                                                                                    |
|--------------------------------------|----------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 1                                    | /STB                                                                 | In                                           | Strobe pulse to latch data, Reading occurs at falling edge.                                                                                                                                    |                                                                                                                                    |
| 2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 | DATA1<br>DATA2<br>DATA3<br>DATA4<br>DATA5<br>DATA6<br>DATA7<br>DATA8 | In<br>In<br>In<br>In<br>In<br>In<br>In<br>In | These signals represent the 1 <sup>st</sup> bit to 8 <sup>th</sup> bit of the parallel data representatively, each signal is at HIGH level when data is logic 1, and LOW when data is logic 0. |                                                                                                                                    |
| 10                                   | /ACK                                                                 | Out                                          |                                                                                                                                                                                                | Answer pulse, LOW level signal indicates that data have already been received and the printer gets ready to receive the next data. |
| 11                                   | BUSY                                                                 | Out                                          |                                                                                                                                                                                                | HIGH level signal indicates that the printer is BUSY and can not receive data.                                                     |
| 12                                   | PE                                                                   | Out                                          |                                                                                                                                                                                                | HIGH level signal indicates that paper running out.                                                                                |
| 13                                   | SEL                                                                  | Out                                          |                                                                                                                                                                                                | Pulling up to HIGH level signal by a resistor                                                                                      |
| 32                                   | /ERR                                                                 | Out                                          |                                                                                                                                                                                                | LOW level signal indicates that there has error.                                                                                   |
| 14, 15, 17, 18, 34, 36               | NC                                                                   | ---                                          |                                                                                                                                                                                                | No connection                                                                                                                      |
| 16, 19~<br>30, 33                    | GND                                                                  | ---                                          |                                                                                                                                                                                                | Grounding logical 0 level                                                                                                          |

Note: (1) “In” denotes input to the printer, “Out” denotes output from the printer.

(2) Signal level is TTL standard.

Fig. 2-7 Pin assignment of 36pin parallel interface

The timing chart for interface signal of parallel interface is as Fig.2-8 shows:

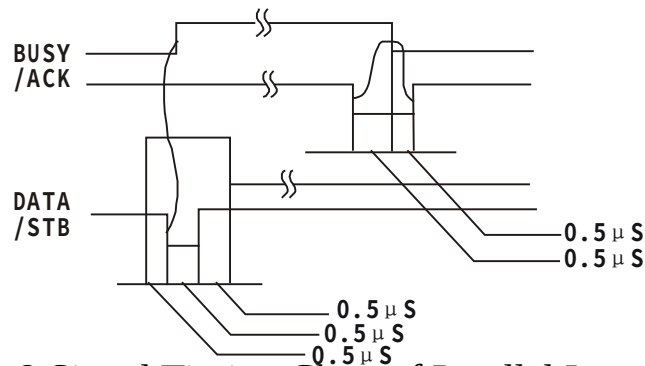


Fig.2-8 Signal Timing Chart of Parallel Interface

### 2.3.3 Cash Drawer Interface

The cash drawer interface of POS-POS88 III adopts RJ-11 6-pin socket, as Fig.2-9 shows:

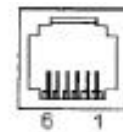


Fig. 2-9

Cash drawer interface

The pin assignment of the cash drawer interface is defined as follows:

| Pin No. | Signal                                  | Direction |
|---------|-----------------------------------------|-----------|
| 1       | Chassis Ground                          | ---       |
| 2       | Cash drawer driver signal               | Out       |
| 3       | Cash drawer on/off status signal        | In        |
| 4       | +24VDC                                  | Out       |
| 5       | N.C                                     | ---       |
| 6       | Cash drawer on/off status signal ground | ---       |

### 2.3.4 Power Connection

POS88III uses the external power supply adopter as 24V±10%、2A, power socket is A-1009-3P model, as Fig. 2-10 shows:



Fig.2-10  
Power Socket

## 2.4 Buttons and Indicators

There is one button and three indicators on POS88 III printer. **【FEED】** is paper feeding button, the function of its enabling or disabling the button on/off can be set by print command, when the button is enabled, press **【FEED】** button, then the paper presenting driver starts up and paper fed

into the printer; release **【FEED】** button, paper feeding stops. The green POWER light is the power indicator, red ERROR light is status indicator, it is dark when the printer works normally, while it flashes when reporting an abnormal emergency, as the following form shows:

| Error                 | Indicator status                     | Description                                                                                      | ERROR Code (Hex) |
|-----------------------|--------------------------------------|--------------------------------------------------------------------------------------------------|------------------|
| Paper running out     | Flash continuously                   | Paper is about to out                                                                            | 88H              |
| Print head uplifted   | Flash once and put out 1.2 seconds   | Put down the print head                                                                          | 82H              |
| Print head overheat   | Flash twice and put out 1.2 seconds  | Printer will restore to normal status automatically when the temperature of the print head drops | 81H              |
| Cutter position error | Flash thrice and put out 1.2 seconds | Printer can't restore, wait for testing whether the cutter blocked paper                         | A0H              |

When the assemblies of printer appear the foresaid errors, parallel interface / ERR pin became “0”signal level, and automatically send one byte ERROR code through TXD parallel interface, the status of printer can be transmitted by ESC v command.

Red PAPEROUT light is paper end indicator. When there is no paper in the print head, the indicator flashes, and sends one byte 84H code through TXD serial interface, while it goes dark in normal status.

## 2.5 Self-test

The self-test will check the condition of printer, if the printer prints out the self-test receipt correctly, it means the printer works normally. Otherwise it needs to repair.

The self-test will print out the firmware version, interface setting and 128

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ANK characters.

Hold down **【FEED】** button and turn on the power, then release the button, self-test begins automatically at this moment.

## 2.6 DIP Switch Setting

DIP Switch1 is used to set the baud rate and data structure of serial interface, setting is as Fig. 2-11 shows.

| DIP | Function                         | ON           | OFF        |
|-----|----------------------------------|--------------|------------|
| 1   | Baud rate selection              | See Fig.2-12 |            |
| 2   |                                  |              |            |
| 3   |                                  |              |            |
| 4   | Handshaking protocol             | XON/XOFF     | RTS/CTS    |
| 5   | Length of character              | 7 bits       | 8 bits     |
| 6   | Parity                           | Yes          | No         |
| 7   | Parity checking mode selection   | Even parity  | Odd parity |
| 8   | Wrong solution to data receiving | Ignore       | Print“? ”  |

Fig. 2-11 DIP Switch1 Setting

| Baud rate (BPS) | DIP 1-1 | DIP 1-2 | DIP 1-3 |
|-----------------|---------|---------|---------|
| 1200            | ON      | ON      | ON      |
| 2400            | OFF     | ON      | ON      |
| 4800            | ON      | OFF     | ON      |
| 9600            | OFF     | OFF     | ON      |
| 19200           | ON      | ON      | OFF     |
| 38400           | OFF     | ON      | OFF     |
| 57600           | ON      | OFF     | OFF     |
| 115200          | OFF     | OFF     | OFF     |

Fig. 2-12 Baud Rate Setting

DIP Switch 2 each bit is reserved bit.

When set DIP switch, it needs to open the small iron plate at the bottom of the printer.

## Chapter 3 Print Control Commands

### 3.1 Summary

POS88III offers ESC/POS print command set.

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Each command is described in following format:

| Print command  | Function                              |
|----------------|---------------------------------------|
| Format: ASCII: | the standard ASCII character sequence |
| Decimal:       | the Decimal number sequence           |
| Hexadecimal:   | the Hexadecimal number sequence       |

Explanation: what the command does and how to use it.

Example: some examples are listed to illustrate the command for better understanding.

## 3.2 Command Descriptions

### 3.2.1 Print Commands

| LF             | Print and Feed Line |
|----------------|---------------------|
| Format: ASCII: | LF                  |
| Decimal:       | 10                  |
| Hexadecimal:   | 0A                  |

Explanation:

Print the content in the buffer and feed paper one line. Only feed paper one line if buffer is empty.

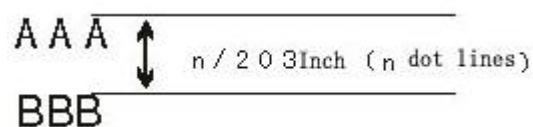
| ESC J          | Print and Feed n Dot Lines |
|----------------|----------------------------|
| Format: ASCII: | ESC J n                    |
| Decimal:       | 27 74 n                    |
| Hexadecimal:   | 1B 4A n                    |

Explanation:

Print the content in the buffer and feed paper n dot lines. (n/203 inch), n=0~255.

This command is only valid for current line and will not change the spacing settings set by ESC 2, ESC 3 commands.

Example:



### 3.2.2 Line Space Setting Commands

| ESC 2          | Set Line Spacing to 1/6 Inch |
|----------------|------------------------------|
| Format: ASCII: | ESC 2                        |
| Decimal:       | 27 50                        |
| Hexadecimal:   | 1B 32                        |

Explanation:

---

Set line spacing to 1/6 inch.

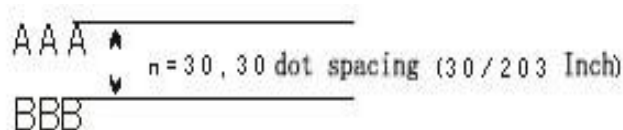
| ESC 3   | Set Line Spacing to n Dot Lines (n/203 inch) |     |    |
|---------|----------------------------------------------|-----|----|
| Format: | ASCII:                                       | ESC | 3  |
|         | Decimal:                                     | 27  | 51 |
|         | Hexadecimal:                                 | 1B  | 33 |

Explanation:

Set line spacing to n dot lines. n=0~255.

One dot-line is 1/203 inch for POS88III, that means this command set the dot-line spacing to n/203 inch. Default n=30.

Example:

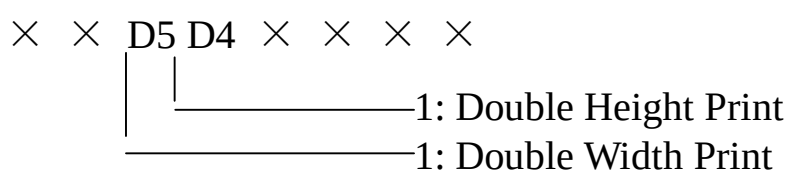


### 3.2.3 Character Print Commands

| ESC !   | Set Character Print Mode |     |    |
|---------|--------------------------|-----|----|
| Format: | ASCII:                   | ESC | !  |
|         | Decimal:                 | 27  | 33 |
|         | Hexadecimal:             | 1B  | 21 |

Explanation:

ESC ! n is a comprehensive command to set character print mode, is used for selecting print character size. Each bit of print parameter n is defined:



Default n=0, that means no character enlargement.

| ESC SO  | Set Double Width Character Print |     |    |
|---------|----------------------------------|-----|----|
| Format: | ASCII:                           | ESC | SO |
|         | Decimal:                         | 27  | 14 |
|         | Hexadecimal:                     | 1B  | 0E |

Explanation:

All characters following this command on the same line are printed at twice their normal width, this command can be deleted by a carriage return or DC4 command.

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| ESC DC4 |              | Cancel Double Width Character Print |     |
|---------|--------------|-------------------------------------|-----|
| Format: | ASCII:       | ESC                                 | DC4 |
|         | Decimal:     | 27                                  | 20  |
|         | Hexadecimal: | 1B                                  | 14  |

---

Explanation:

After carrying out this command, the characters will be printed with normal width.

| ESC %   |              | Select/Cancel User-defined Characters |    |   |
|---------|--------------|---------------------------------------|----|---|
| Format: | ASCII:       | ESC                                   | %  | n |
|         | Decimal:     | 27                                    | 37 | n |
|         | Hexadecimal: | 1B                                    | 25 | n |

---

Explanation:

When n=1, select user-defined character set; When n=0, select internal character set.

Default n=0

| ESC &   |              | Define Use-defined Characters |    |   |   |                   |
|---------|--------------|-------------------------------|----|---|---|-------------------|
| Format: | ASCII:       | ESC                           | &  | s | n | m [a [p]s×a]m-n+1 |
|         | Decimal:     | 27                            | 38 | s | n | m [a [p]s×a]m-n+1 |
|         | Hexadecimal: | 1B                            | 26 | s | n | m [a [p]s×a]m-n+1 |

---

Explanation:

ESC & is used to define user-defined characters.  $s=3$ ,  $32 \leq n \leq m \leq 127$ ,  $0 \leq a \leq 12$ ,  $0 \leq p \leq 255$ ,

◆ s is the number of bytes in vertical direction,  $s=3$  here.

◆ n is the starting ASCII code of user-defined character.

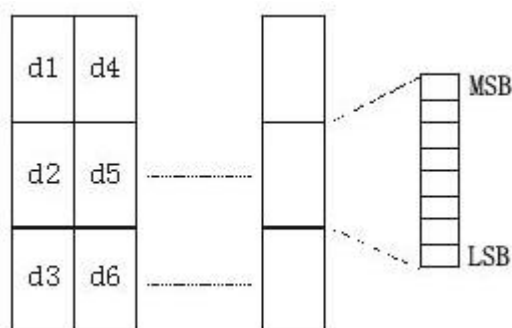
◆ m is the stopping ASCII code of user-defined character.

When define only one character,  $n=m$ , the maximum number of user-defined characters is 96.

◆ a is the number of dots in horizontal direction.

◆ p is the data of self-defined characters, there are  $s \times a$  bytes in each character, the total number of user-defined characters is  $m-n+1$ .

◆ User-defined characters are valid until re-defined, reset or power off, format of the user-defined characters is shown as follows:



### 3.2.4 Special Control Commands

| ESC c 5 |              |     |    | On/Off Switch Button Function |   |
|---------|--------------|-----|----|-------------------------------|---|
| Format: | ASCII:       | ESC | c  | 5                             | n |
|         | Decimal:     | 27  | 99 | 53                            | n |
|         | Hexadecimal: | 1B  | 63 | 35                            | n |

Explanation:

When n=1, button **【FEED】** is enabled;

When n=0, button **【FEED】** is disabled;

Default n=0.

### 3.2.5 Graphics Print Commands

| ESC *   |              |     |    | Set Bit-map Graphics Command |       |      |
|---------|--------------|-----|----|------------------------------|-------|------|
| Format: | ASCII:       | ESC | *  | m                            | n1 n2 | [d]k |
|         | Decimal:     | 27  | 42 | m                            | n1 n2 | [d]k |
|         | Hexadecimal: | 1B  | 2A | m                            | n1 n2 | [d]k |

Explanation:

Select bit-map command, m for setting bit-map mode; n1, n2 for setting number of dots; [d]k for setting contents of bit-map.

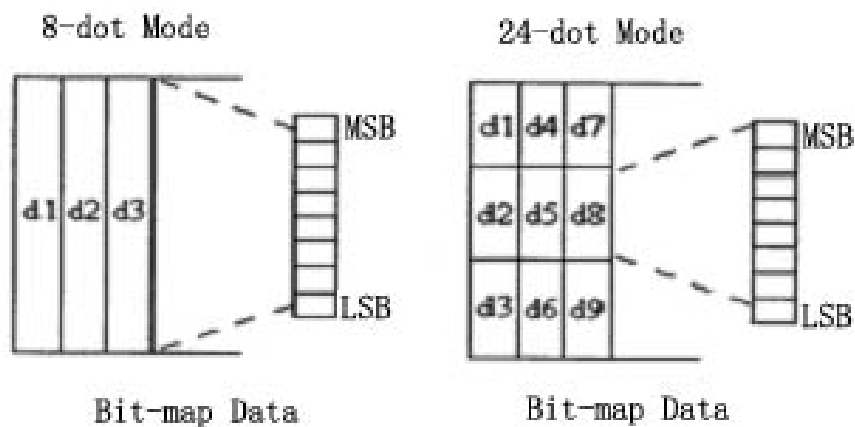
M=0,1,32,33, n1=0~255. n2=0~2. d=0~255.

$k = n1 + 256 \times n2$  (m=0, 1)

$k = (n1 + 256 \times n2) \times 3$  (m=32, 33)

- ◆ The number of horizontal dots of the graphics is  $n1 + 256 \times n2$
- ◆ If the number of dot is more than one line, the extra portion will be ignored (referring the following table)
- ◆ d is the bit map data, for 1 of bit means the related dot will be printed and for 0 of bit means the related dot will not be printed. (k is the total number of dot)
- ◆ m is the selected bit map mode.

| M  | Mode                  | Vertical |         | Horizontal |           |
|----|-----------------------|----------|---------|------------|-----------|
|    |                       | Dot      | Density | Density    | Max. Dots |
| 0  | 8-dot single density  | 8        | 68DPI   | 101DPI     | 288       |
| 1  | 8-dot double density  | 8        | 68DPI   | 203DPI     | 576       |
| 32 | 24-dot single density | 24       | 203DPI  | 101DPI     | 288       |
| 33 | 24-dot double density | 24       | 203DPI  | 203DPI     | 576       |



| GS      | /            | Print download bit map graphics |      |
|---------|--------------|---------------------------------|------|
| Format: | ASCII:       | GS                              | / n  |
|         | Decimal:     | 29                              | 47 n |
|         | Hexadecimal: | 1D                              | 2F n |

Explanation:

This command is used to print download bit-map graph. n=0~3

◆ n is the print mode of bit-map graph selection.

◆ To define download bit-map graph using GS \* command:

| N | Bit map                        | Vertical density | Horizontal density |
|---|--------------------------------|------------------|--------------------|
| 0 | Normal                         | 203DPI           | 203DPI             |
| 1 | Double width                   | 203DPI           | 101DPI             |
| 2 | Double height                  | 101DPI           | 203DPI             |
| 3 | Double height and double width | 101DPI           | 101DPI             |

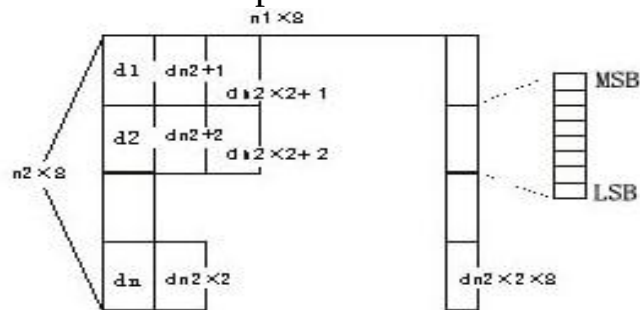
| GS *    |              |    | Define Download Bit-map Graphics |    |    |      |
|---------|--------------|----|----------------------------------|----|----|------|
| Format: | ASCII:       | GS | *                                | n1 | n2 | [d]k |
|         | Decimal:     | 29 | 42                               | n1 | n2 | [d]k |
|         | Hexadecimal: | 1D | 2A                               | n1 | n2 | [d]k |

Explanation:

This command is used to define download bit-map graphics.

$n1=1\sim 48$ ,  $n2=1\sim 255$ ,  $n1\times n2<1200$ ,  $k=n1\times n2\times 8$ .

- ◆ d is the bit-map data.
- ◆ The horizontal size of this graphics is  $n1\times 8$  dots, and vertical size is  $n2\times 8$  dots.
- ◆ The definition is valid until re-define, power off or system reset. Format of the download bit-map data is shown as follows:



### 3.2.6 Bar Code Print Commands

| GS W    |              |       | Set Bar Code Width |    |  |
|---------|--------------|-------|--------------------|----|--|
| Format: | ASCII:       | GS W  | n1                 | n2 |  |
|         | Decimal:     | 29 87 | n1                 | n2 |  |
|         | Hexadecimal: | 1D 57 | n1                 | n2 |  |

Explanation:

$n1$ : bar code narrow bar width, unit: dot. Each dot for POS88III is 1/203 inch or 0.125mm.

Default  $n1=3$ .

$n2$ : bar code broad bar width

| GS k    |              |        | Print Bar Code |     |     |  |
|---------|--------------|--------|----------------|-----|-----|--|
| Format: | ASCII:       | GS k   | n              | [d] | NUL |  |
|         | Decimal:     | 29 107 | n              | [d] | 0   |  |
|         | Hexadecimal: | D 6B   | n              | [d] | 00  |  |

Explanation:

n--- Select the printing bar code system:

| n | Bar code |
|---|----------|
| 2 | EAN-13   |
| 3 | EAN-8    |

---

Pay attention to the specified character number of each bar code. EAN-13 and EAN-8 can generate parity characters automatically.

[d] is the printing bar code data.

NUL denotes GS K command is over, and carry out bar code print.

| GS H    |              | Select/cancel Printing HRI Characters |    |   |
|---------|--------------|---------------------------------------|----|---|
| Format: | ASCII:       | GS                                    | H  | n |
|         | Decimal:     | 29                                    | 72 | n |
|         | Hexadecimal: | 1D                                    | 48 | n |

Explanation:

n=0, don't print HRI characters. Default n=0.

n=1, print HRI characters under bar code print.

| GS h    |              | Set Bar Code Height |     |   |
|---------|--------------|---------------------|-----|---|
| Format: | ASCII:       | GS                  | h   | n |
|         | Decimal:     | 29                  | 104 | n |
|         | Hexadecimal: | 1D                  | 68  | n |

Explanation:

Set height of bar code to be printed.

n=0~255, its unit is dot. When n=0, it is 256 dots.

Each dot for POS88III printer is 1/203 inch or 0.125mm.

Default n=60.

| GS w    |              | Set Bar Code Width |     |   |
|---------|--------------|--------------------|-----|---|
| Format: | ASCII:       | GS                 | w   | n |
|         | Decimal:     | 29                 | 119 | n |
|         | Hexadecimal: | 1D                 | 77  | n |

Explanation:

Set the width of printing bar code.

n=1~4. When n is different, the width of bar code will be different, as shows in the following tab:

| n | Narrow size | Broad size |
|---|-------------|------------|
| 1 | 1           | 3          |
| 2 | 2           | 5          |
| 3 | 3           | 7          |
| 4 | 4           | 9          |

---

Its unit is dot. Each dot for POS88III is 1/203 inch or 0.125mm.  
Default n=3.

### 3.2.7 Other Commands

| ESC @          |     |    | Initialize Printer |
|----------------|-----|----|--------------------|
| Format: ASCII: | ESC | @  |                    |
| Decimal:       | 27  | 64 |                    |
| Hexadecimal:   | 1B  | 40 |                    |

Explanation:

ESC @ command is to initialize the following contents of the printer:

- Clear the data in the print buffer;
- Restore the default of each print command
- Select character print mode;
- Delete user-defined characters.

| ESC p          |     |     |   |    |    | Cash Drawer Control |
|----------------|-----|-----|---|----|----|---------------------|
| Format: ASCII: | ESC | p   | m | nl | n2 |                     |
| Decimal:       | 27  | 112 | m | nl | n2 |                     |
| Hexadecimal:   | 1B  | 70  | m | nl | n2 |                     |

Explanation:

This command is to generate a pulse to trigger the opening and closing of the cash drawer, n1, n2 define the duration of the trigger pulse.

m=0,  $0 < n1 \leq n2 \leq 255$ .

Opening time is  $n1 \times 2\text{ms}$ , Closing time is  $n2 \times 2\text{ms}$ .

| ESC v           |     |     | Transmit Status of Printer |
|-----------------|-----|-----|----------------------------|
| Format: ASCII : | ESC | v   |                            |
| Decimal:        | 27  | 118 |                            |
| Hexadecimal:    | 1B  | 76  |                            |

Explanation:

Send printer status to the host.

When printer received the command, it transfers one byte through TXD serial interface. Definition of said byte is shown as below:

| Bit | Function               | Value 0    | Value 1             |
|-----|------------------------|------------|---------------------|
| 0   | Print head temperature | Normal     | Print head overheat |
| 1   | Print head position    | Press down | Put up              |
| 2   | Paper tester           | With paper | Without paper       |

|   |                   |                      |                   |
|---|-------------------|----------------------|-------------------|
| 3 | Paper running out | With paper           | Paper running out |
| 4 | Not in use        | 0                    | 0                 |
| 5 | Cutter position   | On original position | False position    |
| 6 | Undefined         | — — —                | — — —             |
| 7 | Undefined         | — — —                | — — —             |

### ESC u Transmit Status of Equipment

|         |              |     |     |   |
|---------|--------------|-----|-----|---|
| Format: | ASCII:       | ESC | u   | n |
|         | Decimal:     | 27  | 117 | n |
|         | Hexadecimal: | 1B  | 75  | n |

Explanation:

Send the peripheral equipment status to the host:

Default n=0

When printer received this command, it transmits one byte through TXD line of the serial interface to the host.

| Bit | Function                        | Value 0 | Value 1 |
|-----|---------------------------------|---------|---------|
| 0   | Cash drawer on/off signal level | Low     | High    |
| 1   | Undefined                       | — — —   | — — —   |
| 2   | Undefined                       | — — —   | — — —r  |
| 3   | Undefined                       | — — —   | — — —   |
| 4   | Not in use                      | 0       | 0       |
| 5   | Cutter position                 | — — —   | — — —   |
| 6   | Undefined                       | — — —   | — — —   |
| 7   | Undefined                       | — — —   | — — —   |

### GS V Paper cutting

|         |              |    |    |   |   |
|---------|--------------|----|----|---|---|
| Format: | ASCII:       | G  | S  | u | m |
|         | Decimal:     | 29 | 86 | n | m |
|         | Hexadecimal: | 1D | 56 | n | m |

Explanation:

Printer carries out cutting paper operation once. n=0, n=1 or 49 is for cutting paper immediately, the said ways needn't to specify m. When n=66, should feed paper the number of dot lines set by m, then cut paper,  $0 \leq m \leq 255$ . Each dot for POS88III printer is 1/203 inch or 0.125mm. It can

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realize whole cutting or half cutting through changing the cutter.

## **Appendix 1 Performance Index**

- Print method: Direct thermal
- Print width:  $79.5 \pm 0.5\text{mm}$
- Valid print width: 72mm
- Print density: 8 dots/mm, 576 dots/line
- Print speed: Approx.150mm/sec.or 40 lines/sec.
- Reliability:
  - Print head life: 100km
  - Using condition:
    - \* Print  $12 \times 24$  ASCII characters, print 50 lines each time, intermittent print repeatedly
    - \* Each dot-line printing at the same time should not exceed 25%, each character line and one dot vertical printing repeatedly should not exceed 11 times
    - \* Use specified thermal paper
  - Cutter life: 500,000 times
  - Using condition: less than 30 times/minute
- Thermal paper roll model: TF50KS—E (Japan paper co.ltd)  
AF50KS-E (JUJO THERMAL)
- Thermal paper roll
  - Width — — —  $79.5 \pm 0.5\text{mm}$
  - Outer Diameter — — — 80mm (max.)
  - Inner Diameter — — — 13mm (min.)
  - Thickness — — —  $53 \sim 60\text{g} / \text{m}^2$
- Print Font
  - ANK character set:
    - $12 \times 24$  dots, 1.5 (W)  $\times$  3.00 (H) mm;
  - GB Chinese Character library level I, II:
    - $24 \times 24$  dots, 3.00 (W)  $\times$  3.00 (H) mm;
- Serial interface
  - DB-25 socket (female), supports XON/XOFF and RTS/CTS protocols.
  - Baud rate: 12000~115200bps adjustable.
  - Data structure: 1start bit + (7 or 8) data bits + 1stop bit. Parity is optional.
- Parallel interface
  - DB-25 socket (male) or 36-pin is optional, 8-bit parallel interface, BUSY/ACK handshaking protocol, TTL signal level.
- Cash drawer control

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DC24V, 1A, 6-pin RJ-11 socket.

•Power Supply

DC24V±10%, 2A, A-1009-3P power socket.

•Operation Environment

Operation temperature: 5~50℃; relative humidity: 10~80%

Storage temperature: -20~60℃; relative humidity: 10~90%

## Appendix 2 Index of Print Commands

| Command name                  | Command | Description                                  |
|-------------------------------|---------|----------------------------------------------|
| Print commands                | LF      | Print and feed line                          |
|                               | ESCJ    | Print and feed n dot lines                   |
| Line spacing setting commands | ESC2    | Set character line spacing to 1/6 inch       |
|                               | ESC3    | Set line spacing to n dot lines (n/203 inch) |
| Character print commands      | ESC!    | Set character print mode                     |
|                               | ESC SO  | Set double width character print             |
|                               | ESC DC4 | Cancel double width character print          |
|                               | ESC%    | Select/Cancel User-defined Characters        |
|                               | ESC&    | Define user-defined characters               |
| Special control commands      | ESC c 5 | On/Off switch Button function                |
| Graphics print commands       | ESC*    | Print bit-map graphics                       |
|                               | GS /    | Print download bit-map graphics              |
|                               | GS *    | Define download bit-map graphics             |
| Bar code print commands       | GS W    | Set bar code width                           |
|                               | GS H    | Select/cancel printing HRI characters        |
|                               | GS h    | Set bar code height                          |
|                               | GS k    | Print bar code                               |

|                |       |                              |
|----------------|-------|------------------------------|
|                | GS w  | Set bar code horizontal size |
| Other commands | ESC @ | Initialize printer           |
|                | ESCp  | Cash drawer control          |
|                | ESCv  | Transmit status of printer   |
|                | ESC u | Transmit status of equipment |
|                | GS V  | Paper cutting                |

### Appendix 3 Index of Print Characters

|   |    |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |
|---|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| + | A  | 0 | 1 | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| + | A  | 0 | 1 | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 7 |    | 1 | " | # | \$ | % | & | ' | ( | ) | * | + | , | - | . | / |   |
| 3 | n  | 1 | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |   |
| 4 | 00 | A | B | C | D  | E | F | G | H | I | J | K | L | M | N | O |   |
| b | P  | 0 | 1 | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E |   |
| b | .  | a | b | c | d  | e | f | g | h | i | j | k | l | m | n | o |   |
| / | μ  | q | r | s | t  | u | v | w | x | y | z | { |   | } | ~ |   |   |
| 8 | Q  | U | é | 8 | 8  | h | 8 | c | è | è | è | Y | 1 | 3 | h | R |   |
| 9 | e  | x | h | 8 | 8  | h | Q | h | Y | 0 | U | æ | é | M | h | f |   |